Dunn dismisses Russegger's views as based on "extravagant optimism."

The bulletin includes the reports of fourteen syndicates; but of these companies thirteen have allowed their concessions to lapse, and the only mine at work is that of Om Nabardi.

The prospecting has no doubt been superficial and hurried, and it is possible that mining may yet prove profitable in some of the goldfields; but the evidence is not sufficiently promising to tempt private enterprise to spend more money in prospecting. A geological survey of the country is now the best chance of ultimate success, for it should indicate the best sites for more detailed research, and the prospects are sufficient to justify the expenditure by the Government. The collected reports will be very useful, but might have been accompanied by some editorial notes, for though the preface contains the warning that the director is not responsible for the statements quoted, the bulletin gives currency to many which are certainly erroneous. Thus one report states that the district described contains "nearly every class of volcanic rocks," yet it mentions none in the detailed account, and apparently no volcanic rock is present in that area. The repetition of such statements without warning in the official bulletins of a geological survey is apt to lead to subsequent mistakes. J. W. G.

JEFFERSON PHYSICAL LABORATORY.[1]

THE previous volumes of the series of publications from the Jefferson Physical Laboratory, which have been published annually, have contained a reprint of the original publications contributed during the year by the staff and students of the Jefferson Physical Laboratory, Harvard University. The volume before us differs somewhat in scope and intention from its predecessors, for it is dedicated to Prof. John Trowbridge on the occasion of his retirement from the directorship of the laboratory. An excellent photograph of Prof. Trowbridge is given in the frontispiece, and the following dedication is included:—"To John Trowbridge, who projected a great physical laboratory for Harvard University and found the means to build and equip it, who by his foresight, invention, and care has kept this laboratory among the foremost in opportunities for scientific achievement, and by his magnanimity has made it a place proverbial for good feeling, this volume is gratefully and affectionately dedicated by those who have profited by his labours and enjoyed his friendship."

The volume, which is twice or thrice as bulky as the previous numbers, contains the reprint of twenty-six papers contributed by past and present students of the Jefferson Physical Laboratory. Most of the papers have been published in other journals before the appearance of the present volume. Among the contributors are Prof. Kennelly and Mr. Alexanderson, who give an account of some experiments on the physiological tolerance of alternating-current strengths for frequencies up to 100,000 cycles per second; Prof. B. O. Peirce, with several papers on magnetism; Prof. Lyman, on the spectra of some gases in the Schumann region; Prof. Duane, on the heat generated by radio-active substances; and Prof. Richards and J. H. Mathews, on a method for determining heat of evaporation as applied to water. The last paper in the volume is a short one by Prof. Sabine, and gives an account of some interesting experiments on the relative sense of loudness of sounds of different pitch shown by different observers.

It will be seen that the contents of the volume are very varied in character, covering the greater part of the domain of physics. The list of the distinguished contributors to this volume and the character of the papers contained in it afford a striking illustration of the great influence of the physical laboratory of Harvard University on the development of physical science in America. Not only has the laboratory been responsible for the training of a number of men of science who have gained great distinction, but it has always taken a leading place in the promotion of scientific research and in its original contributions to physics.

E. R.

NOTES.

THE Court of Inquiry into the loss of the *Titanic* was on May 22 occupied with a consideration of the warnings as to ice received by wireless telegraphy by the vessel before the disaster. From the evidence as reported in the Press, it would appear that during the course of the *Titanic's* voyage six vessels communicated definite information as to the position of ice. Five of the warnings, it is reported, were received on the day of the wreck—the last some two hours before the collision with the iceberg. As to whether all the messages were communicated to the captain and officers there would seem to be doubt, and, in view of the death of the chief telegraphic operator, this may never be known. The court will, however, report on such matters. The only bright point in this sorrowful subject relates to the services rendered by science through wireless telegraphy. By it were the warnings given, and when these were disregarded, with terrible consequences, the call for help which went vibrating through the æther brought rescue to the survivors in the boats. No patrol system could have given more particulars of the positions of the ice than is contained in the advices communicated by various vessels, and no method which may be devised of detecting ice at a distance can prevent disaster if its predictions have to be neglected on account of the exigencies of rapid transit. After everything has been done by science to avoid calamity, there is still need for care and foresight in making full use of the warnings offered.

AMONG the recommendations of the American Committee of Inquiry into the circumstances of the *Titanic* disaster are that there should always be some-body on duty at the wireless telegraphy apparatus, that there should be legislation against interference by amateur operators, and that all ships carrying more than a hundred passengers should have two searchlights. In connection with the last recommendation a paper by Dr. Henry Wilde, F.R.S., on searchlights for the mercantile marine, of which a summary appears among our reports of societies (p. 338) is of particular interest. Dr. Wilde states in his paper certain causes which have retarded the progress of the use of searchlights on merchant ships, and are largely responsible for the deplorable event which is now engaging the attention and sympathy of the civilised world. The great value of searchlights for navigation, as well as for other purposes, at sea, was reported to the Lords Commissioners of the Admiralty by Admiral Sir Beauchamp Seymour in 1876. The Admiralty later claimed the right, from the exigencies of the public service, to use Dr. Wilde's inventions without making any compensation, and to prevent the adoption of the searchlight in ships other than those of the Royal Navy. There are many circumstances in which searchlights are useful apart from the navigation of ice-fields and the avoidance of icebergs, as instanced in the detection of derelicts and the rendering of assistance to other vessels in a disabled or sinking condition. Referring to the loss of the *Titanic,* Dr. Wilde remarks, "It has been repeatedly stated in evidence that at the time of the collision and for some hours afterwards, the atmosphere was perfectly clear, so much so that the stars were seen brightly on the horizon. If, therefore, the *Titanic* had been equipped with an efficient searchlight, an iceberg would have shone out by reflection at a distance of several miles (visible to all persons on deck) and collision therewith would have been easily avoided. The ultimate responsibility, therefore, of a calamity which the world now deplores rests upon the naval authorities at Whitehall through their blind policy of excluding searchlights from the mercantile marine."

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[1] "Contributions from the Jefferson Physical Laboratory and from Colleagues and former Students, dedicated to Prof. John Trowbridge, S.D., for the Year 1910." Vol. viii. (Cambridge, Mass., U.S.A., n.d.)

IN the list of those who are now known to have perished in the *Titanic* disaster, we regret to note the name of Mr. Henry Forbes Julian, a well-known member of the Institute of Mining and Metallurgy. Mr. Julian was a pupil of Sir Henry Roscoe, and began his career as a consulting engineer for the mining of precious metals in South Africa. In 1904, with Mr. Edgar Smart, he published a treatise on "Cyaniding Gold and Silver Ores," which has passed through three editions. He was an unassuming student of several branches of science, and for many years regularly attended the meetings of the British Association. In 1902 he married the youngest daughter of the late Mr. William Pengelly, F.R.S., and also became an active member of the Devonshire Association and the Torquay Natural History Society. With Mrs. Julian he travelled extensively, and a large circle of friends mourns his sad loss.

THE KING has conferred the honour of knighthood on Mr. Harry James Veitch, who has taken a leading part in connection with the recent International Horticultural Exhibition, and has been a pioneer in many departments of horticulture, notably in the hybridisation of plants, and in the collection of rare specimens from many parts of the world.

AN extra meeting of the Chemical Society will be held at Burlington House on Wednesday, June 26, at 8.30 p.m., when Sir William Tilden, F.R.S., will deliver the memorial lecture in honour of the late Prof. Stanislao Cannizzaro.

THE Peabody Museum, Yale University, is hoping to benefit by an expedition which will visit Texas and Nebraska this summer in search of fossil remains of prehistoric horses. The museum at present contains parts, but parts only, of twenty-six such horses. A look-out will also be kept for remains of the great imperial mammoth. The expedition will be led by Prof. R. S. Lull, assisted by Mr. F. W. Darby.

THROUGH the liberality of a friend, the Smithsonian Institution has just been able to participate in a zoological expedition to the Altai Mountain region of the Siberia-Mongolian border, Central Asia. Mr. N. Hollister, assistant curator, Division of Mammals, U.S. National Museum, represents the institution, and will make a general collection of the birds and mammals. At present the party expects to remain in the field for four months hunting and collecting, returning to the United States about the beginning of October.

THE Government Bill to deal with the subject of the feeble-minded, to which reference was made in a note in our last issue (vol. lxxxix., p. 300), has formed the subject of discussion at the meetings of several associations during the past week. The Medico-Psychological Association resolved unanimously that the authority which will have to administer the new Feeble-minded Persons Control Act should be constituted at once in anticipation of any amalgamation such as is contemplated by section 62, and that such body, in the first instance, should consist of the Commissioners in Lunacy. The general committee of the London Teachers' Association passed a number of resolutions on the subject. Among other matters, this committee urges that any measure for the education, care, and training of mentally defective children should be made compulsory; that all educable mentally defective children should be registered; that the present system of special instruction for mentally defective children in day special schools should be continued; and that all children, still certifiable as mentally defective on leaving schools or institutions, should automatically be subject to the control of the commissioners.

DR. H. BAYER publishes a lecture (Jena: Fischer, 50 pp.) on "Vererbung und Rassenhygiene," addressed especially to the medical profession. It is intended as a sketch on quite general lines of the principles underlying eugenics. The work of Galton, Pearson, and Johannsen is described and compared, after which follows a discussion of Weismannism. Although the inheritance of somatic acquirements is rejected, considerable importance is ascribed to the action of environment on the germ-cells. A clear account of Mendel's laws is illustrated by coloured diagrams. Proceeding to the consideration of eugenics in particular, the author maintains that at the present time the chief task of the eugenist is the collection of accurate family histories, more especially the results of consanguineous marriage. The possibilities in this direction are illustrated by good genealogical charts of the Habsburg dynasty, showing the occurrence of the famous lip and the remarkable amount of consanguineous marriage. In conclusion, the author gives a tabular summary of types of inheritance. With regard to the practical aspect, he considers that the science of eugenics is still in a very elementary stage; its task is rather investigation than drastic action, for which our knowledge is not yet ripe.

THE Research Department of the Royal Geographical Society brought its worthy career to a close on Thursday, May 23, with a valedictory address by the chairman, Prof. J. L. Myres. It is not to be supposed that the society's efforts at encouraging research in geographical subjects have been tried and found wanting; rather they have been attended with such success that it is in future intended to add to their efficacy by making the afternoon meetings at which research subjects have hitherto been discussed no longer departmental meetings, but meetings of the society as a whole. Prof. Myres pointed out in his address some of the important branches of study that have come under the purview of the department—branches which fully justify a wider view being taken of them. They include new methods of surveying, problems of geomorphology (especially those affecting rivers and coasts), of hydrography and of climatology, various regional and synthetical studies and investigations from the point of view of distribution, physical changes within historic times, and the exploration or investigation of particular territories with special regard to conditions affecting their settlement and economic development. The list is nearly, if not quite, as comprehensive as the term "geography" itself.

ON May 6 the Aëro Club of Washington held a field day in commemoration of the anniversary of Dr. S. P. Langley's first successful flight with his model steam "aërodrome" on May 6, 1896, when the practicability of mechanical flight was demonstrated. The successful model was a steam-driven, double-propeller tandem biplane, having a total sustaining surface, without the tail, of 68 square feet, and a total flying weight of 26 lb. Its engine was rated at about one horse-power. In the initial flight the machine remained in the air for one minute and thirty seconds, and traversed a distance of about 3000 ft., a little more than half a mile. It landed safely in the Potomac River, as had been planned, was taken out, immediately put on the track, and relaunched. In the second flight a repetition of the former success followed. In a subsequent report on the subject Dr. Langley said:—"A flying machine, so long a type for ridicule, has really flown; it has demonstrated its practicability in the only satisfactory way—by actually flying, and by doing this again and again under conditions which leave no doubt." Later experiments with a man-carrying machine were terminated by two trials in 1903, which were discouraging after the labour and effort put upon the machine itself and the auxiliary apparatus. The aëroplane was precipitated into the water before it was fairly launched into the air, due to a slight defect in the launching apparatus. Dr. Langley admitted no failure in his machine, which all students of modern aviation agree was correctly built, and undoubtedly would have flown if it had been properly launched. Not realising that the launching was an accident and not a failure, and not understanding that the proceedings were in the nature of a Government secret, the Press and the public ridiculed Dr. Langley and his machine, and the War Department decided not to renew the grant for further experiments.

THROUGH arrangements made with the Metropolitan Museum of New York, the Smithsonian Institution and the U.S. National Museum have been investigating the physical characteristics of the natives of the Kharga Oasis, in the Libyan Desert, lying about 130 miles west from Luxor. Dr. Ales Hrdlicka, curator of physical anthropology, U.S. National Museum, spent some fifteen weeks in the field carrying out the work, and the results of his studies have just been issued by the Smithsonian Institution under the title "The Natives of the Kharga Oasis, Egypt." Owing to their isolation, the natives of the oasis may be regarded as representing the old inhabitants of the region, who probably settled there about 2000 B.C. In selecting individuals for examination and measurement, Dr. Hrdlicka chose only those showing normal development, who were apparently free from negro admixture. The total population of the oasis is about 10,000, including some Bedouins, but out of this number Dr. Hrdlicka found only 150 individuals available for study. The type of the Kharga natives is radically distinct from that of the negro. It appears to be fundamentally the same as that of the non-negroid Egyptians of the Nile Valley, and is a composite of closely related north-eastern African and south-western Asiatic, or "Hamitic" and "Semitic," ethnic elements, and is to be classed as part of the southern extension of the Mediterranean subdivision of the white race.

MR. R. TORII publishes in vol. xxxii. of the Journal of the College of Science, Imperial University of Tokyo, the second part of an elaborate anthropological monograph on the aborigines of Formosa. The present instalment is confined to the Yami tribe of Kotosho or Botel Tobago Island. They are a small race, averaging only 5 ft. 2 in. in height, and seem to be formed of two distinct types, one with the small nose and non-protruding lips of the Malay, the other with projecting eyebrows, deeply sunk orbits, short noses, and large nostrils, with the large mouth and thick lips of the pure Papuan, but having lost his special feature—the frizzled hair. The monograph is furnished with an elaborate series of measurements and a number of good photographs of this little-known race.

IN the May issue of *Man* Mr. J. P. Johnson describes a series of native kraals with elaborate stone-wall enclosures in the Masibi Bantu Reservation on the Magalakwin River, in the north Transvaal, which are interesting in connection with the problems of the origin of the Zimbabwe and similar ruins. These kraals contain an inner and an outer enclosure, the former being used to stable the cattle at night, as a place of assembly, and to protect the grain-pits excavated beneath its floor. A curious feature of the enclosure is a tapering pole decorated with alternate coloured bands, and carved at the top in the shape of the head of a hornless ox. Mr. Johnson, owing to his ignorance of the language, could only ascertain that they were in some way connected with initiation rites. On the analogy of similar village poles in India and elsewhere, they seem to represent the embodied "luck" of the community. Thus they become easily anthropomorphised, and pass into some form of idol worship.

WE are indebted to the author, Mr. G. Weber, for a copy of an article from the *Sitzber. k. Akad. Wiss. Wien*, vol. cxxi., on the movements of the circumoral cilia in the heterotrichous infusorians, such as Stentor and its relatives. After reviewing previous theories, the author describes, with diagrams, his own views on the nature of these highly complex movements.

BY the Smithsonian Institution we have been favoured with a communication relating to a recent zoological exploring and collecting expedition in the neighbourhood of the Panama Canal. Large collections of fishes have been secured, which it is believed will be of great interest and importance in the future as indicating the present condition of the fish-fauna of the district. At present there appear to be more or less well-defined faunas severally restricted to the Atlantic and Pacific slopes and the two coasts of the Panama area, but when the canal is completed these faunas must become mixed. Many salt-water fishes, for example, will readily ascend fresh-water streams, and some will in this manner probably make their way to the Gatun Lake.

ACCORDING to a richly illustrated article by Dr. W. Leche, published in the "Zool. Jahrbüch" for 1912, the skull of the tropical American howling monkeys (Mycetes) undergoes a kind of retrograde post-embryonic development, in consequence of which it assumes a form assimilating to that characteristic of the lower mammals, such as Carnivora, rather than the type distinctive of the Primates in general. The embryonic skull, on the other hand, is essentially of the Primate type. The degeneration displays itself in the lengthening of the facial region, so that the skull gradually passes from a brachycephalic to a meso-, or even dolicho-, cephalic type, most of the cephalic indices thereby becoming much lower than in any other anthropoids, while the hemispheres extend to a smaller degree over the cerebellum in the adult than in the young. Observations are also recorded with regard to a correlation between the degree of development of a sagittal crest and of the jaws in the Primates. It is added that Pithecanthropus cannot, as often supposed, be merely a gigantic gibbon, as a gibbon of such stature devoid of a sagittal crest could not have existed.

THE Ctenophora, or comb-jellies, form one of the most remarkable and interesting groups of the pelagic cœlenterates, and are well known for their wonderful beauty and delicacy. For twenty years Mr. A. G. Mayer, now director of the department of marine biology of the Carnegie Institution of Washington, has been engaged upon the study of this group as it occurs on the Atlantic coast of North America. Publication No. 162 of the Carnegie Institution contains the results of this investigation, and will be welcomed by all students of marine zoology. The group is a small one, and only twenty-one species have been recorded from the area in question. Four of these are new to science, while six are Mediterranean species. The work, which is very beautifully illustrated, comprises a general account of the anatomy and detailed descriptions of the species, together with notes on the physiology and embryology. One would scarcely suppose that these transparent gelatinous organisms could be a source of danger to the existence of such highly organised animals as fishes, but it appears that in the cold northern waters they occur in vast swarms and constitute a serious menace to the cod fisheries by devouring the pelagic eggs and young fish.

PROF. H. SPEMANN (*Zool. Jahrb.*, Bd. xxxii., Heft 1) describes experimental studies on the development of the eye in embryos of the edible frog. He cut out a portion of the medullary plate, and replaced it, but with the anterior and posterior ends reversed. The wounds healed, and the piece proceeded to develop as if it were in its normal position. By arranging that the anterior cut passed through the anlage of each eye, it was found possible to produce tadpoles with four eyes—two in the normal position and two further back, either in front of or behind the auditory organ. If the lens-forming cells were replaced by epidermis transplanted from any other part of the head, or from the body, the optic vesicle was unable to evoke the formation of a lens from these "foreign" cells. The author transplanted, in embryos of the mountain toad, *Bombinator pachypus*, a small fragment of the eye, together with the overlying lens-forming epidermis, to a more posterior position, and found that the lens formed was well developed, although the retinal fragment was very small and deformed. The formation of the lens could scarcely be due, in this case, to any mechanical stimulation which such a small eye-fragment could exert, but was possibly due to some specific chemical stimulus proceeding from the fragment.

PROF. C. CORRENS, who shares with de Vries and Tschermak the honour of having "rediscovered" Mendel's laws in the year 1900, and who has since contributed so materially to the science of genetics, has just published under the title "Die neuen Vererbungsgesetze" (Berlin: Gebrüder Borntraeger, price 2 marks) a useful and readable account of the more recent discoveries in this field. The book is expanded from a semi-popular lecture, and it gains materially in interest from the fact that the author largely describes his own work, including some results published for the first time.

Mr. R. S. Adamson, of Cambridge University, has published an interesting and detailed ecological study of a small woodland area at Gamlingay, near Cambridge. The distribution of the vegetation itself is correlated with observations on climate, composition and water-content of the soil, evaporation, light intensity, and other factors of the habitat. The wood is situated on Boulder Clay, above Gault and Lower Greensand. The clay gives rise to two very distinct types of soil—a heavy calcareous clay and a non-calcareous loam. The vegetation of these soils is quite different, the calcareous soil supporting an oak-and-ash association, and the loam a pure oak association, each with its own characteristic plant-societies. Six plates accompany the paper, which appears in the Journal of the Linnean Society, vol. xl. (January).

In the *Jahres-Berichte und Mitteilungen des Oberrheinischen geologischen Vereines* for 1912, Heft ii. (1.50 marks), various writers combine to furnish a geological guide to the interesting district between Bâle and Laufenburg on the Rhine. The occasion for these papers was the meeting of the society in April at Rheinfelden, one of those beautiful old-world centres from which much of Switzerland and of the Black Forest may be visited. South of Bâle, again, lie picturesque ravines and ridges in the Juras, where the strata are happily fossiliferous. At Laufenburg, of which many travellers to Constanz catch some glimpse from the railway, the floor of ancient gneiss comes to the surface from beneath Permian and Triassic strata, and the Rhine forms picturesque rapids across the obstacle. Those in search of a field of study where a variety of rocks and a variety of physiographic features are conveniently combined, and where even the villages retain a mediæval character, may well turn, under such guidance, towards the Upper Rhine.

Among the various contributions of interest and importance to the first volume of the "Records of the Survey of India, 1909–10" (Calcutta, 1912), there is one from the pen of the Surveyor-General himself, Colonel S. G. Burrard, which, though occupying barely a single page, foreshadows the establishment of a branch of the work which will be of peculiar value to physical geographers. "It is intended in future," he says, "to maintain a record of all changes that may be noticed to have occurred or to be now occurring in the form and features of the land-surface." The beginning of the new topographical survey offered the opportunity for this. Instructions have been issued which indicate, by way of example, various directions in which changes may be looked for. Thus it is known that the sands of the Rajputana desert are advancing north-eastward under the influence of prevalent winds; it is desired to specify with precision how far they have done so, and whether there is a compensating retreat along the opposite fringe of the desert. The advance of the sand is known to have changed the course of Punjab rivers; it is desired to ascertain whether it is still doing so. The changes in river-courses generally, in the low plains, are to be observed with particular reference to the question whether their movement is always in a particular direction or not. The growth of deltas and the effects of irrigation works upon it, coastal changes, and the desiccation of formerly cultivated lands, are other important points to be noticed.

An interesting paper discussing the results of a careful survey of the Girdle Stanes—a standing stone circle in Eskdale, Dumfriesshire—is published by Mr. G. R. Goldsbrough in part iii., vol. iv., of the Proceedings of the University of Durham Philosophical Society. Working on the orientation theory as enunciated by Sir Norman Lockyer, Mr. Goldsbrough finds convincing evidence that the foundation of the Girdle Stanes had an astronomical basis. A feature of the sight-lines is that two natural landmarks are employed, as at the Keswick Circle, according to Dr. Morrow, and this at first sight would appear to be rather a difficult condition to fulfil; but correspondence with Mr. Goldsbrough elucidates the demonstration that at the Girdle Stanes it was quite a simple matter to place the circle so that these two existent features might serve as azimuth marks. Mr. Goldsbrough finds evidence that the sunrise of the first and second quarter days of the May-year was marked, and that clock stars and warning stars were probably used at the Girdle Stanes about 1300 B.C.

The volcanic eruptions in the Philippine Islands have been attended with serious loss of life on two occasions, one of Mayon in 1814, the other of Taal in 1911. In order to determine whether this loss might have been averted or lessened, the Rev. M. Saderra Masò, assistant-director of the U.S. Weather Bureau, has examined the phenomena preceding the eruptions (twenty in number) of these volcanoes during the last two centuries. He finds that both the explosive eruptions of Taal and the lava eruptions of Mayon have invariably increased from a mild beginning, indicated by earthquakes or subterranean noises, to a maximum intensity which followed generally after a few days, and but rarely a few hours later, thus allowing sufficient time for most persons to escape. An interesting result of the inquiry is that the earthquakes which have nearly always accompanied and followed the great eruptions of Taal cannot be ascribed to vibrations caused by the violent escape of the ejecta, but are due to movements of the fault on which the volcano is situated. This is shown by the persistence of the tremors after the volcano has returned to its normal state and by the migration of the seismic foci to the north-north-east and south-south-west of the volcano.

The possibilities of an industrial development in the Highlands, from the utilisation of the water-powers, is foreshadowed in a paper read by Mr. A. Newlands, assistant engineer of the Highland Railway, before the Inverness Scientific Society, and now obtainable in pamphlet form from Messrs. Carruthers and Sons, *Courier* Office, Inverness. Nothing has served so much in recent years to direct attention to the water-power of the Highlands as the installation of such works as those at Foyers and Kinlochleven, the former developing 7000 horse-power and the latter 30,000 horse-power. Many smaller installations are scattered over the north and west of Scotland, and Mr. Newlands discusses how the development of this natural resource can be effected throughout the area. He suggests that this potential power ought to be looked upon as a national asset, and that the appointment of a Royal Commission to examine and report is desirable. Scotland is estimated to possess a million horse-power from water, and even if the figures be put at one-half that amount, this, Mr. Newlands says, would represent an amount of power on a ten-hour working day basis throughout the year equal to that obtained from 3½ million tons of coal, which is about one-twelfth of the total quantity raised in Scotland for 1911, and of this quantity only a small proportion is converted into power.

THE seventh part, forming part ii. of the supplement, has reached us of "Bibliotheca Chemico-Mathematica: Catalogue of important Works, many old and rare, on Mathematics, Astronomy, Physics, Chemistry, and Kindred Subjects," issued by Messrs. Henry Sotheran and Co., of Strand and Piccadilly, London. Another useful catalogue is that published by Messrs. Dulau and Co., Ltd., of Soho Square, London, giving particulars of some 1703 works on entomology offered for sale by this firm.

OUR ASTRONOMICAL COLUMN.

ASTRONOMICAL OCCURRENCES FOR JUNE:

June 2. 16h. 0m. Mercury in conjunction with Saturn (Mercury 0° 28′ N.).
3. 20h. 36m. Uranus in conjunction with the Moon (Uranus 4° 31′ N.).
8. 19h. 0m. Mars at greatest distance from the Sun.
11. 16h. 54m. Mercury in conjunction with Venus (Mercury 0° 26′ N.).
13. 1h. 1m. Saturn in conjunction with the Moon (Saturn 5° 15′ S.).
14. 9h 4m. Venus in conjunction with the Moon (Venus 4° 29′ S.).
" 13h. 40m. Mercury in conjunction with the Moon (Mercury 3° 48′ S.).
16. 14h. 44m. Neptune in conjunction with the Moon. (Neptune 5° 38′ S.).
17. 0h. 0m. Mercury in superior conjunction with the Sun.
" 22h. 54m. Mars in conjunction with the Moon (Mars 3° 29′ S.).
21. 7h. 17m. Sun enters Sign of Cancer. Solstice.
26. 15h. 59m. Jupiter in conjunction with the Moon (Jupiter 4° 37′ N.).
29. 18h. 53m. Mercury in conjunction with Neptune (Mercury 2° 27′ N.).

THE REPORTED DISCOVERY OF A COMET.—No news of the reported discovery of a comet has come through the usual channels, and no further observations of such a body are reported. A bifurcated nebula, excessively long and irregular, is shown near the given position in the New General Catalogue.

THE SPECTRUM OF NOVA GEMINORUM NO. 2.—Although numerous papers have already been published dealing with the spectrum of Nova Geminorum No. 2, it is obvious that the nature and reason of its remarkably complex changes have yet to be explained, and probably the fuller discussion will controvert some of the conclusions already arrived at, as it must, for they disagree *inter se*.

One debated question, the true nature of the very earliest spectrum recorded, is of primary importance. Some observers say it was not like the F5-type spectrum (Procyonian type), a purely absorption spectrum, while Prof. Pickering believes that it was. In this he is supported by Mr. J. A. Parkhurst, who, writing in *Popular Astronomy*, No. 4, vol. xx., of the spectra secured at the Yerkes Observatory, states that the one photographed on March 13 was a dark-line spectrum of the F5 type in which the solar G group shows faintly just to the left of $H\gamma$, but in which there was a slight tendency towards fluting in the continuous spectrum, not seen in the typical stars. The spectrum extended further into the ultra-violet than that of θ Geminorum, a Sirian star, thus indicating radiation at a much higher temperature than the average F5 star.

Mr. Parkhurst says that he believes this to be the first case in which the entire change from an absorption to an emission spectrum has been followed at this stage in the evolution of a new star, but Harvard reported a somewhat similar transition in the case of Nova Persei.

A telegram from the Kiel Centralstelle informs us that on a spectrogram taken at Bonn Observatory "dark lines [due to] uranium radium emanation" have been found by Dr. Küstner. The telegram was sent from Kiel late on May 28, but it is not stated on what date the spectrogram was secured.

THE MAY AQUARIDS AND HALLEY'S COMET.—From a discussion of the observations of the Aquarid meteor shower, made by the Bureau Central Météorique in 1910 and 1911, Herr Cuno Hoffmeister deduces parabolic elements of the meteor stream and compares them with the elements of the path of Halley's comet. The chief difference is in the longitude of the node, and when this is eliminated the approximate elements resulting show no difference which cannot readily be explained by the probable errors of observation of a meteor radiant. He concludes that there can be little doubt of the intimate relationship of the meteor stream and the comet (*Astronomische Nachrichten*, No. 4573).

THE MEASUREMENT OF CELESTIAL DISTANCES.—The current number of *Scientia* (vol. xi., No. 3) contains a very interesting paper by Mr. Hinks dealing with the measurement of celestial distances. Mr. Hinks reviews the enormous labours of the Eros campaign which enabled him to deduce so satisfactory a value (8·806″ ± 0·002″) for the solar parallax, and pays a just tribute to the French institutions which, by their unselfish labours and expenditure, enabled the work to be completed.

He outlines the scheme for determining stellar distances more accurately and promptly, and points out the almost insuperable difficulties which at present appear to debar absolutely the direct measurement of many of them. The base line provided by the earth's orbit is so small, relatively, that only one star is known to have an annual parallax of 1″, and not more than twenty stars are known to have a parallax greater than 0·2″. The completion of the Astrographic Catalogue is a work of primary importance if future generations of cosmogonists are to attack this great problem under more favourable conditions than yet obtain.